

Feeling and Association

by Walter Leslie Harris

1913

Submitted to the faculty of the Graduate School of
the University of Kansas in partial fulfillment of
the requirements for the Degree of Master of Arts

FEELING AND ASSOCIATION

A Thesis submitted to the
FACULTY OF THE GRADUATE SCHOOL
of the
UNIVERSITY OF KANSAS
for the
Degree of Master of Arts

Walter Leslie Harris

1913

Titchener has declared the present status of knowledge in regard to feeling[#] a scandal to experimental psychology. Be that as it may, psychology has many times over settled the place of feeling, as it has settled all other problems at the various stages of its history. But many of the problems of psychology are solved as a cork is held under water. The moment you let go it bobs up again.

Plato's solution of a place for feeling was very simple, as far as feeling was concerned. Ideas were the sole reality and in contemplating these was the highest good for man. This perfect goodness of ideas, of course, implied the imperfection of things. If contemplation of truth be good, then contact with the world about us through the senses must be bad. And if we allow ourselves to be swayed by emotions, then do we fail to be worthy of the company of pure ideas. Hence according to Plato one should purify himself from all the things of the world and purge himself from all influence of the feelings. Evidently the influence of feeling upon intellectual life was neither necessary or desirable. Yet Plato was also forced to admit that in the realm of imperfect ideas feeling might be made an ally.

[#] By feeling we mean the larger field which includes all forms of affection and emotion, and do not restrict the term to a more technical usage.

Stoicism and Epicurism were opposite extremes in viewing the place of feeling. But an entirely new philosophy of feeling arises in Christian philosophy. Feeling was no longer such an earthy thing as Plato and the Stoics would have us believe, but a very entrance way to realms of reality. Reason could not always be depended on "for now we see through a glass darkly." "And if I have the gift of prophecy and know all mysteries and all knowledge- - - but have not love I am nothing." The highest good for Christianity was to know God and be like him. To know God was a thing of the heart.

It is strange that in the formation of the churchly philosophy of mediaeval centuries this doctrine of feeling should receive such a nominal place. Philosophy and psychology were so thoroughly under the dominance of Greek thought that Logic and Epistemology crowded out the claims of feeling to a place in determining truth. Feeling was considered only a form of cognition, subordinate to the inter-play of ideas. The Aristotelian classification of the faculties under Reason and Will endured without opposition until the beginning of modern philosophy.

The first great break came in the teaching of Rousseau. Scorning the aristocratic claims of Reason he taught that the emotions, expressing the true sentiments of the inner

life ought rather to be followed. Natural man, untrammelled by the precepts of Reason was nearer the heart of reality than all the deep-thinking logicians of all time. He even went so far as to declare that children should, for a certain period, be left to develop in their own way, free from restraint of an intellectual society. This was merely going to the other extreme; yet education is mistaken in assuming that there are no real truths there, beyond a few scattered hints.

The doctrine of the "natural life" never gained the ascendancy in philosophical thinking. There was no room for it in the same house with logic, and experimental psychology based on Herbartian doctrines. A few only followed Rousseau in philosophy; but the literature of the Nineteenth Century bears ample evidence to the acceptance of his ideas in the field of letters.

The first change in the psychology of feeling as distinct from the philosophical bearings, came as a result of the Enlightenment. The increasing importance of the aesthetic as the basis for the ethical, by which the "Beautiful" was placed on an equality with the "Good" drew attention to feeling. It could no longer be classed as either of the faculty of Reason or of Will. It seemed a peculiar form of expression and Tetens and Kant were led to make of it a new

faculty. Kant divided the mind powers into Fühlen, Wollen and Vorstellen, a terminology which remains with us even though the old faculty psychology is well-nigh passed away. (Even Kant made the essence of consciousness to coincide with cognition. There has always been this strong tendency to rationalize the conscious life.)

Since Kant it is usual to give feeling an independent place, at least in common parlance. Herbart however accounted for feeling as a result of the interplay of ideas, and as Titchener says, experimental psychologists have tended to follow his example and explain it ultimately in terms of sensation, action or reasoning.

Of our modern psychologists Wundt calls it "the reaction of apperception upon the sensory contents of consciousness." Royce says, "By feeling we simply mean our present sensitiveness to the values of things." Titchener calls the affections "mental processes of the same general kind as sensations and as mental processes that might under favorable conditions have developed into sensations" and tries, at least, to admit that they are independent mental processes. Yet he refuses to admit that we can have any feeling without accompanying "sensible factors." James commonly uses the term feeling as equivalent to psychosis, tho' he says "the emotion is a tendency to feel----characteristically in

the presence of a certain object in the environment.

The question of what element or elements constitute feeling, as well as the question of one, two, or three dimensional feeling and like problems vex the analytical psychologist. Yet the functional psychologist is little better off. He can describe his own emotions and feelings, and mark their physical aspect in others. He can classify them, chiefly from the view-point of physiological changes. But so can any novelist or poet.

Educational psychology is likewise at a loss. Being accustomed to find much of its material ready at hand in General Psychology, it here meets a baffling situation. The importance of aesthetic and emotional training is by no means slighted. But how develop that which we scarcely know from whence it comes or how? When Educational Psychology takes up the problem of feeling and emotion it finds itself involved in a problem much more intricate and theoretical than usually falls within its province.

In educational psychology it is customary to approach the education of the emotions indirectly and thus a relationship between the intellectual and affective states is assumed. Thus, "Feelings must be approached indirectly through ideas or actions.- - - - Think the thought, good or bad; do the deed, right or wrong, and the feeling appropriate to it is

aroused.- - - Too much feeling disturbs clear thinking, judgment and reasoning and make character unreliable." (10)

Speaking of the media for emotional transmission Bagley says "There is obviously a difference between language used for purely intellectual purposes and language used for emotional purposes. - - - The media of intellectual transmission and the media of emotional transmission stand then upon different levels. - - - The essence of emotional transmission is its inconstancy." (8)

Thorndike likewise adds "To arouse a given emotion- - - we may use one of three methods. (1) Ideas that have in the past been connected with emotion may be aroused- - - (2) The emotion may be communicated through imitation- - - (3) The bodily response characteristic of the emotion may be aroused." (9)

. . . .

The laws of feeling have usually been treated as subservient to the laws of ideation. Thus Höffding, in accounting for the flow of feeling says "It is through the relation of thoughts to new thoughts that feelings pass into new feelings. Since, however, the movement of feeling is slower than that of the thoughts, it is not surprising that intellectual progress is as a rule in advance of the development of feeling." But he adds that "the course and rate of development (mental) are conditioned not only by the laws of

the flow of ideas but also by the special laws of the life of feeling. On the other hand that which has taken root in feeling is the better retained." (Cf. Hoffding "Outlines of Psychology" Sections B, C, E, and F on Feeling).

Feeling then, according to Höffding, may influence the flow of ideas in various ways. (1) It may tend to inhibit the flow of ideas from reaching the ordinary full conclusion, (2) "Feeling is the faithful guardian of what has been acquired." (3) Feeling may make an idea a stronger center of association than it would otherwise become.

Without admitting these to be all the relations between ideation and feeling, to what extent are even these found in our daily thoughts? Is it true that we are being educated away from the influence of the emotional in life? Or does the emotional still cling to its place in our minds, not buried so deeply that none but the larger crises of life can call it forth? To consider such questions as these is our purpose.

.

The first data to be considered is obtained from an experiment perfected by Dean Charles Hughes Johnston, of the University of Kansas. The experiment which utilizes the free association method was arranged as a class experiment in Educational Psychology and has been used for several years in

classes in that subject.

The method and manner of the experiment were as follows: The general method was the free association method. Previous to the actual experiment the subjects were given trial series for several days. All questions likely to arise were carefully discussed. In the actual experiment eleven associational series were obtained, from the following stimulus words.

- I. One concrete word --Pencil
- II. One abstract word --Quality
- III. Two unrelated concrete words--Door, bottle.
- IV. Two related concrete words--Comb, brush.
- V. Two unrelated abstract words--Texture, culture
- VI. Two related abstract words--Knowledge, power
- VII. One emotional word Grief }
 One concrete word-- Woman } Related
- VIII. One concrete word-- Potato }
 One emotional word-- Hate } Related
- IX. Two emotional words -- Ferocity, pity

Forced Fusion

- X. Two related concrete words --Muscle, blood
- XI. Two related abstract words--Health, efficiency

In the last two series the subjects were to choose from the associations which arose only those which were

relevant and formed a logical and consistent train of thought. They were also to attempt to fuse the two words into one series.

Two experimenters carried on the experiment. One pronounced the stimulus words, while the other kept the time with a stop watch. The stimulus word was pronounced, and the subject wrote as rapidly as possible the train of ideas which arose, until the call of "Time" at the close of Seconds. The first ten words in each series, if there were more than ten, were next copied on a printed sheet, ruled in columns. The sheet was then filled out, in accordance with the column headings which were as follows:

A check was placed, for example, in the column where the word in the series aroused any feeling, or if no image could be aroused in the column marked "Imageless Thought." If the word only vaguely expressed a mass of crowding ideas, the last column might be checked.

At the close of the experiment printed questions to be answered by retrospection were distributed. Some of these bear directly upon our problem. The associations were also classified under the various "laws of association."

aroused.- - - - Too much feeling disturbs clear thinking, judgment and reasoning and make character unreliable." (10)

Speaking of the media for emotional transmission Bagley says "There is obviously a difference between language used for purely intellectual purposes and language used for emotional purposes. - - - The media of intellectual transmission and the media of emotional transmission stand then upon different levels. - - - The essence of emotional transmission is its inconstancy." (8)

Thorndike likewise adds "To arouse a given emotion- - - we may use one of three methods. (1) Ideas that have in the past been connected with emotion may be aroused- - - - (2) The emotion may be communicated through imitation- - - - (3) The bodily response characteristic of the emotion may be aroused." (9)

.

The laws of feeling have usually been treated as subservient to the laws of ideation. Thus Höffding, in accounting for the flow of feeling says "It is through the relation of thoughts to new thoughts that feelings pass into new feelings. Since, however, the movement of feeling is slower than that of the thoughts, it is not surprising that intellectual progress is as a rule in advance of the development of feeling." But he adds that "the course and rate of development (mental) are conditioned not only by the laws of

the flow of ideas but also by the special laws of the life of feeling. On the other hand that which has taken root in feeling is the better retained." (Cf. Hoffding "Outlines of Psychology" Sections B, C, E, and F on Feeling).

Feeling then, according to Höffding, may influence the flow of ideas in various ways. (1) It may tend to inhibit the flow of ideas from reaching the ordinary full conclusion, (2) "Feeling is the faithful guardian of what has been acquired." (3) Feeling may make an idea a stronger center of association than it would otherwise become.

Without admitting these to be all the relations between ideation and feeling, to what extent are even these found in our daily thoughts? Is it true that we are being educated away from the influence of the emotional in life? Or does the emotional still cling to its place in our minds, not buried so deeply that none but the larger crises of life can call it forth? To consider such questions as these is our purpose.

.

The first data to be considered is obtained from an experiment perfected by Dean Charles Hughes Johnston, of the University of Kansas. The experiment which utilizes the free association method was arranged as a class experiment in Educational Psychology and has been used for several years in

classes in that subject.

The method and manner of the experiment were as follows: The general method was the free association method. Previous to the actual experiment the subjects were given trial series for several days. All questions likely to arise were carefully discussed. In the actual experiment eleven associational series were obtained, from the following stimulus words.

- I. One concrete word --Pencil
- II. One abstract word --Quality
- III. Two unrelated concrete words--Door, bottle.
- IV. Two related concrete words--Comb, brush.
- V. Two unrelated abstract words--Texture, culture
- VI. Two related abstract words--Knowledge, power
- VII. One emotional word Grief }
 One concrete word-- Woman } Related
- VIII. One concrete word-- Potato }
 One emotional word-- Hate } Related
- IX. Two emotional words -- Ferocity, pity

Forced Fusion

- X. Two related concrete words --Muscle, blood
- XI. Two related abstract words--Health, efficiency

In the last two series the subjects were to choose from the associations which arose only those which were

relevant and formed a logical and consistent train of thought. They were also to attempt to fuse the two words into one series.

Two experimenters carried on the experiment. One pronounced the stimulus words, while the other kept the time with a stop watch. The stimulus word was pronounced, and the subject wrote as rapidly as possible the train of ideas which arose, until the call of "Time" at the close of Seconds. The first ten words in each series, if there were more than ten, were next copied on a printed sheet, ruled in columns. The sheet was then filled out, in accordance with the column headings which were as follows:

A check was placed, for example, in the column where the word in the series aroused any feeling, or if no image could be aroused in the column marked "Imageless Thought." If the word only vaguely expressed a mass of crowding ideas, the last column might be checked.

At the close of the experiment printed questions to be answered by retrospection were distributed. Some of these bear directly upon our problem. The associations were also classified under the various "laws of association."

Seventy-seven subjects furnished a total of 787 association series, and a total of over 4,000 associations.

Of this experiment we shall use a part of the results, not so much as conclusive data, but as illustrative material. As the experiment was given to classes of about thirty, members of which were beginners in Educational Psychology, it would perhaps be unwise to advance the data for any other purpose. Attention would for the moment be more intensely pointed, but in general much poorer than under other conditions.

The first inquiry is as to the actual number of associations aroused by each stimulus word, when there are more than one. Is the "emotional" word in any series able to arouse a larger number of associations, proportionately, than another word in the same position in another series? The factor of position will be discussed later. At present we will use no rule or theory, but let each series compare with the others.

The following table will show the comparative results:-

Exp.	From first word	From Second	From Both
III.	237 or 44 %	259 or 49 %	39 or 7 %
IV.	79 or 14 %	103 or 19 %	365 or 67 %
V.	147 or 46 %	152 or 47 %	24 or 7 %
VI.	174 or 36 %	160 or 33 %	148 or 31 %

VII.	133 or 27 %	146 or 30 %	207 or 43 %
VIII.	103 or 30 %	228 or 67 %	8 or 3 %
IX.	140 or 47 %	110 or 36 %	49 or 13 %
X.	49 or 22 %	53 or 24 %	117 or 54 %
XI.	52 or 24 %	28 or 13 %	138 or 63 %

We note then that in the sixth and ninth experiments the first word has a slight advantage. In the third, fifth and eighth the second has aroused the largest number of associations; while in the fourth, seventh, ninth and tenth series the most of the words come from a fusion of both stimulus words. yet in almost no case is the difference between the effect of the first and second words notable, except in the eighth series, where it is 37 %.

Now what part do the so-called "emotional" words seem to play? In the third experiment, where the stimulus words are unrelated percepts there is a slight advantage of 5 % in favor of the second word. In the fourth, with two related percepts as stimuli, there is the same percent omitting consideration of words coming from a fusion of meanings. In the fifth, the advantage dwindles to only 1 %. In the sixth the stimulus words are two related concepts; and the advantage falls to the first word, with a 3 % lead. But in the fourth and sixth by far the larger percent of words are due to a combination of the stimulus words which are intended

to be related; that is, to have meanings which are likely to call up a common idea or situation. Hence words due primarily to only one of the two words are really only an overflow from the main trend of the series. Admitting them to consideration, however, we are forced to conclude there is, in the present instance, little to choose between the influence of the two stimulus words, when both are percepts or both concepts.

In the seventh series an "emotional" word, grief, is introduced, related to the percept, woman. 43 % of the words are due to a fusion of meanings. But of the remaining words only 27 % are due to the first word while 30 % are due to the second. This result is almost exactly the same as in Experiments three to six. Evidently, then, we must conclude, in the present series, that a percept which is familiar and tangible is able to hold its rightful place against a word of supposedly emotional content; but is not able to gain any more decided advantage.

In the eighth series we find our "emotional" word, Hate, placed second to a percept, Potato, which is unrelated. Only 3 % of the words are due to a fusion. But 67 % come from the second word and only 30 % from the first. Now we find the ordinary results over-turned, and a difference of 37 % appears in place of the percept which comes first. Evident-

ly then, the emotional word is considerably less able to attract attention when compared with a percept as common as Potato than percepts or concepts in the same position in other series were able to do. Yet we must not forget that here we have a new situation, in another way also. For an "emotional" word is a concept, and we are comparing a concept to a percept.

In the ninth series two emotional words, seemingly unrelated, except by contrast, appear. 47 % are due to the influence of the first word; only 36 % to the second, and 13 % to the fusion of the two. This immediately raises the question as to ^{the} intrinsic values of the two words. Does the significance of the first word, when pronounced prohibit the full force of the second being realized, because it is first, or because of its meaning? With well-nigh a hundred subjects, it was impossible to answer this question, outright; as it would require considerable, careful introspection and would then hold true for only this particular case.

Now the question also arises as to why we should expect to find any such differences as we seem to be looking for with emotional word-stimuli. Do words sometimes tend to throw about themselves an emotional atmosphere, such as to effect unduly succeeding words? Professor James seemed to think so, when he introduced that new law of association,

the Law of Emotional Congruity. For he says in his Psychology (Volume I, page 576) that associations may often occur simply because of a "congruity of emotional tone." That is, the particular emotional tone or condition at a given time may determine for us, what associations will arise. As Colvin illustrates it (Learning Process, 154) "If a person is depressed and gloomy, he is apt, for example, on seeing a winter's landscape to associate with it ideas of barrenness and solitude, while on the other hand, if he is in a cheerful mood, the sparkle of the ice, the bracing nature of the atmosphere and the holiday appearance of the landscape are the things that predominate in his mind. This is, again, an illustration of the fact that the interests, aims, and values that a person brings to his facts determine, in a very large manner the selection of the elements to be associated and the direction of such associations."

Adding the Law of Emotional Congruity to the four secondary laws of Primacy, Recency, Vividness, and Frequency it was next inquired as to what proportion if any, of the associations were by "emotional congruity." To what extent does feeling pervade the train of associations as a direct force?

From the stimulus words listed were obtained a total of 3895 associated words. Of these 235 or 6 % were classed as associations by "emotional congruity", while the remaining

94 % or 3660 were classed under the remaining four laws. The maximum percent of associations by emotional congruity found on any one paper was 25 %. The minimum 0, was found on a large number, 14. The mean was, of course, 6 %. That is, about 6 % of the train of words aroused were caused by the emotional tone. But this is not enough for us to know. How were these associations distributed? Did they come from the prevailing mood at the beginning of the experiment, or from a later mood set up by some idea during the experiment?

Accordingly the same series, when given again with a few variations ("moral" for "culture" in Series V, "Grass--Pity" for "Potato--Hate" in Series VIII, and "Friendliness" for "Pity" in Series IX) was examined more closely. Associations were classified by Series, instead of in a lump. Nineteen subjects reported. The results may be tabled as follows;

Series	Assoc. by Em. Cong.	Other Associations.
I.	5 or 3 %	190 or 97 %
II.	10 or 6 %	162 or 94 %
III.	4 or 2 %	177 or 98 %
IV.	7 or 3 %	190 or 97 %
V.	4 or 3 %	145 or 97 %
VI.	4 or 3 %	159 or 97 %
VII.	25 or 13 %	153 or 87 %

VIII.	13 or 7 %	181 or 93 %
IX.	9 or 6 %	137 or 94 %
X.	4 or 4 %	107 or 96 %
XI.	<u>5 or 5 %</u>	<u>90 or 95 %</u>
Total	90 or 5 %	1691 or 95 %

The mean per cent of associations by "emotional congruity" was 5 %. In the second, seventh, eighth and ninth series there are more than the mean per cent. In the second series one concept was the stimulus, and there was no conflict or restraint upon the stimulus word. In the seventh eighth and ninth series one or more "emotional words" occur as stimuli. That is stimulus words of an emotional content are likely to be present when associations by "emotional congruity" occur. Whether or not the "emotional tone" was present at the beginning of the experiment, as a mood, it did not find its full force until these emotional words occurred.

And we further find that in the one series in which an emotional word occurred and was related to the other word Series VII--the percent runs highest. In most cases this series not only appeared to call up a mood, but one much more definite than any other. The present data, then, tends to show that emotional word stimuli are more apt to set up a feeling tone, which is directive in its force, than other

stimuli. And again, the less conflict between stimulus words and the more definitely and concretely they reinforce one another, the more apt are we to form such associations.

On the other hand only two out of the nineteen subjects managed to find any hint of such association in the tenth and eleventh series, where "forced fusion" or sequential relevancy of associations, was called for. Both formed such associations to the extent of approximately an average of 33 % in each of the two series, but the average number of associations per series was only eight. Evidently, we may expect a large amount of individual difference, in such a report. For six of the nineteen failed to find any such associations anywhere in the eleven series.

A third source of information was the questionnaire, filled out by retrospection. In 1910 Mr. J. H. Hunger classified thirty-two answers to the questions, of which three bear upon our topic. His results were as follows:

1. When feeling is present in the series does it seem to be
 - (a) A coloring influence, 16
 - (b) A determining factor, 9
 - (c) An unrelated element, 0
 - (d) A retarding obstacle 0
 - Both (a) and (d) 2
 - Vague or no answer 5

A series which received a warmth of tone or a personal flavor from the presence of feeling in the series would be described as a "coloring influence". When feeling actually had a part in fixing what the next word would be it was a "determining factor". In the first case the words would have come just the same without any feeling, though their effect would not have been the same, in the second case the series would have been different if feeling had not been present. When feeling seems neither to add a coloring to the meaning of the series, nor to direct its course, nor even to slow it up, it would be called an "unrelated element." When feeling causes the series to unfold more slowly than it would have done had feeling not been present, it would be classed as a "retarding obstacle."

2. Do the words seem to come into the conscious stream.

- | | |
|---|----|
| (a) To represent part of a developing feeling | |
| or mood | 11 |
| (b) Or as independent items in a logical | |
| experience | 6 |
| Both (a) and (b) | 13 |
| Vague | 2 |

3. Do you detect fewer "feelings of relation," less logical connection, when the series may be called emotional?

No

15

Yes

11

No answer 2 Unaccounted for 4.

The results tabulated from sixty-six papers during the present year are as follows:

1. When feeling is present in the series does it seem to be
 - (a) A coloring influence 47
 - (b) A determining factor 19
 - (c) An unrelated element 7
 - (d) A retarding obstacle 20

Two people had no "feeling" in the experiment, and are not counted. When the total amounts to over sixty-four, it is because some found different results in different series--not specified.

2. Do the words seem to come into the conscious stream.
 - (a) To represent part of a developing feeling
or mood 11
 - (b) Or as independent items in a logical ex-
perience 24
 - Both (a) and (b) in various series 26
 - Vague or no answer 2

One answer was qualified; when the words are emotional (a) was true--otherwise, (b).

3. Do you detect fewer "feelings of relation," less log-

ical connections, when the series may be called emotional?

No	30
Yes	29
No Answer	5

In 51 % of the cases feeling was said to be a coloring influence, thus giving the series a different value than it would otherwise have had. 21 % found it a retarding influence, thus proving it to have still another effect. While 20 % of the cases found it to be at least one of the directing influences, and in 8 % of the cases, only, it was felt to be an unrelated element.

Feeling, also, may be a factor in rendering associations less logical, as was found in about 50 % of the cases. That is, the associations came with at least less intellectual show of logical connection. Yet the larger percent of all the eleven series, were found to come logically, and only the more emotional series have the less obviously logical connection.

We have then abundant illustration, even if we do not call it proof, of the power of the emotional in thought processes, even under such strained or mechanical situations as above. We have found it affecting the thought series in various ways. It tended to attract associations to the word ~~to~~ which it accompanied. It formed a category of assoc-

iation, and was found to directly affect the conscious flow of associations in the four ways last mentioned.

We shall next attempt to verify these tendencies by a more intensive study under more suitable conditions.

.

The succeeding experiment was taken up with a purpose more definitely our own; that is, to determine as far as possible the characteristics of associations from words of an emotional content; words of an emotional content being here arbitrarily assumed to be the names of certain emotions or emotional states. Or, in other words, what influence does a word which means or "points to" an emotional state, have upon an associational series, in comparison with other words which do not per se "point to" emotional states?

It may be pointed out that in an experiment utilizing the free association method as does this one, some words not themselves expressing an emotional content may because of their previous memory-associations "point to" an emotional content. As far as possible this has been guarded against, by questioning the subjects in regard to their series, after the experiment period, and in a few cases rejecting the material. Whether or not the "emotional" word aroused an emotional back-ground was hard to determine. In a few cases it certainly did not. But in any case the meaning alone of

the word would supply ideas at least marginal, of the emotional state.

The basis of the experiment was the previous experiment of Dean Johnston; and the experimental work of Mr. Bird T. Baldwin in the Harvard Laboratory, between 1903 and 1905 on "Associations Under the Influence of Different Ideas." The results were published in the Harvard Psychological Studies, Volume II; and the present investigation was also fortunate in having his original data at hand.

Previous to Baldwin's work, while the free association method had been largely used, no particular work had been done on this question. Scripture in his "Elements of Experimental Phonetics" (p. 142) had declared the influence of two practically simultaneous ideas to be proportionate to their "relative masses," or importance as ideas. Miss Calkins in an article in the Psychological Review (Vol. 5, p 451) noted incidentally that the first of two immediately successive words had the preponderance. Baldwin notes this fact as differing from his own results. In our previous section we find ourselves taking a non-committal position, both from the nature and the results of the experiment.

Baldwin attacked the problem directly. Varying combinations of words, nonsense syllables, and pictures were used as the starting points for his experiments. Upon a portion of his results the present investigation proceeds.

From a total of eight hundred fifty-five experiments, conducted with nineteen subjects, he obtained results as follows. With nonsense syllables as stimuli, the second (of two pronounced successively) had a little over three times as much influence as the first upon the succeeding series. Of two words spoken, or two pictures shown, the second again was predominant in influence, and very nearly to the same extent. With a picture shown and a word spoken, the picture was strongest. But when a general, familiar word preceded a specific word the second stimulus was again most potent. A concrete word when placed first, with an abstract word, nearly overcame the apparent disadvantage of position, and when pronounced last was far the stronger. A proper noun was more influential than an abstract noun, whether first or second.

In the next series he arranged three words which led up to the first, second, neither, and both of the stimulus words in each of four experiments, respectively. Here, however, he failed to take account of individual peculiarities of memory association. In some individual's experience the leading words might not point to the expected one of the two stimulus words. Nor did Baldwin take the (perhaps partial) precaution of the present experiment and question his subjects in regard to the possibility. In the first and

second series the preparatory words swing the scale, in the third the balance is well-nigh perfect; while in the fourth the second word again emerges triumphant. A quotation leading to the second of the names of two authors shown, also gave the second word the predominance, though in individual cases either a lack of literary knowledge or some other equally potent factor led to variations.

With series arranged so that the second, or even third or fourth words of the stimulus are delayed so as to interrupt the associations already begun, the results are not very definite. A word denoting the whole, however, out-classed a word denoting a part; a complex picture, a more simple one; the second of three words, the other two. The second of four words was stronger than the other three; when the words were shown, with the fourth word ranking second. But the fourth word came first, when spoken, with the first, second, and third following in that order.

We have followed Baldwin thus carefully, because of the frequent comparisons to be made. His general conclusions, however, will be noted later.

The present experiment was carried out during the latter part of the school year 1912-13. Five students in the School of Education agreed to act as subjects. Two of them were graduate students, two Seniors and one a Junior. All had had courses in general and educational psychology; and

all had had some experience in free association experiments before the present experiment was begun. Four of the five subjects were men. They are denominated by G., Gr., S., and St. The one woman is referred to as H. G., however, through pressure of circumstances dropped out soon after the close of the practice series, and his name does not appear thereafter.

Each subject was experimented with alone. It was attempted, as far as possible, to give one period a week to each subject. Interruptions sometimes made it necessary to carry out several tests in one week. The stimulus words were pronounced successively, in all cases. The subject wrote as rapidly as possible for forty seconds the words which came to his mind. Then at the call of "Time" he went back and noted the associational connections of the various words; and then talked over the series, if at all unusual, with the experimenter.

The following symbols, adopted from Baldwin, will be used to denote results. / denotes the influence of only the first stimulus; - that of only the second; x denotes complete fusion in the associations, of the result of both; a denotes fusion in which the first has predominant influence; and b, fusion with the second predominating.

First Series

Previous to the first actual experiment, a practise series lasting about two weeks was carried out. By the time the first series was given, then, the subjects were well at home in the method, and felt little or no strain of unusual conditions.

The first series was a test of Baldwin's results with two words as stimuli, using in the present instance, however, "emotional" words. Miss Calkins claimed that "the first word pronounced tends often to establish itself so firmly that its association-images are proof against the intrusion of the second word, which has therefore no chance to be grasped with the first." Baldwin's results, tabulated from 1156 associations were as follows.

	/	-	x	a	b
No.	268	721	87	31	49
%	23.2 %	62.3 %	7.6 %	7.6 %	4.3 %

Baldwin's stimulus words were "concrete nouns with apparently equivalent connotation" such as store--church and ship--bay. Miss Calkins also used concrete, spoken words. Her results were by no means as decisive as Baldwin's, --190 associations from the first word, and 148 from the second.

The stimulus words used in the present series were paired as follows:

- (1) Fear--Sympathy (2) Anger--Pride (3) Pity--Reverence
 (4) Grief--Hate (5) Joy--Love.

A sample table of results following Baldwin's method,
 is given. The stimulus words were Fear--Reverence.

Gr. / / / - / - - / / -
 G. - / / / - - - - - - -
 H. - - - - - - - - - - -
 S. - - - - - - - - - - -
 St. x - - x - -

Table I [†]							
Gr.	No.	/	-	x	a	b	Total
		12	5	14	0	0	31
	%	39.0	16.1	44.8	.00	.00	
G.	No.	16	43	0	0	0	59
	%	27.1	71.8	00	00	00	
H.	No.	0	44	15	13	0	72
	%	00	60.8	20.8	18.0	00	
S.	No.	14	29	7	0	0	50
	%	28	58	14	00	00	
St.	No.	2	6	14	1	5	33
	%	6.0	18.1	57.5	3.0	15.1	33
Tot al	No.	44	127	55	14	5	245
	%	17.9	57.8	22.4	5.7	2.0	

Baldwin's results are borne out strikingly. Even the
 proportion between / and - are very near his; although the +
 results are somewhat larger. This however may well be ex-

^{*} Note: All percentages should be read plus.

plained by the nature of the stimulus words. Love and Joy have much in common; as do almost all the paired stimuli. The very fact of the stimuli being names of emotions unites them more closely than such words as store-church.

Evidently then we need feel little hesitancy in declaring that the second of two given words is apt to be more potent in its influence. For four of the subjects taken individually this was the case. Gr. alone found the first word more powerful. Gr., however, had the fewest number of associations and admitted many inhibitions. The power of the second word is seemingly in that the train of thought proceeds immediately from it. If inhibitions occur, and pauses ensue, the influence of the first word is likely to re-occur. H. illustrates the opposite result, finding no place for the first word in her series. Her mind works quickly; there are no inhibitions to speak of; and hence little chance of the first word breaking in, if the associations start from the second word.

Second Series

Baldwin found that when he used an abstract word as the first stimulus and a concrete word as the second, his results were as follows.

No.	$\frac{1}{50}$	$\frac{-}{107}$	$\frac{x}{49}$	$\frac{a}{4}$	$\frac{b}{11}$
%	22.6	48.4	22.2	1.9	4.9

Baldwin comments "That concrete terms produce more vivid impressions than abstract ones, and would, when it is possible to use them, be of direct aid to the learner."

Taking his results as accurate we next proceed to compare an abstract "emotional" word, placed first, to a concrete term. It thus suffers a double disadvantage, that of position and of abstractness (For Baldwin also found that a concrete term is more influential than the abstract word, even when the latter is given the better place.) The stimulus-words were:

Fear--Hat	Grief--Pen	Glad--Stick
Love--Stone	Sad--Flower	Weep--Door
(Weep--Door)		
Gr.	/ / / / - - - - -	
H.	- / / / / / - - - - -	
S.	- / / / / / / / / /	
St.	- - x x / / / / /	

Table II.

		/	-	x	a	b	
Gr.	No.	8	39	10	0	0	57
	%	14.0	68.4	17.5	00	00	
H.	No.	37	43	3	0	0	83
	%	44.5	51.8	3.6	00	00	
S.	No.	31	22	2	0	0	55
	%	56.3	40	3.8	00	00	

St.	No.	15	16	1	3	4	39
	%	38.4	40.9	2.5	7.6	10.2	
Tot	No.	91	120	16	3	4	234
al	%	38.8	51.2	6.8	1.2	1.7	

Comparing these results with Baldwin's we do find a difference, in that "emotional" abstract words have a much larger percentage of associations than the abstract words used by him. The difference in favor of the concrete words is by no means as striking, except in the case of Gr. Were it not for his series there would be but little difference in the first two columns above. S. found a larger number of associations flowing from the "emotional" word in spite of its apparent draw-backs.

If we compare the individual scores in Tables I. and II we find some marked differences. Gr. we saw above was most pronounced in favor of the concrete word placed last. In Table I he alone found the first word to be most influential. His second series betokens a complete reversion; and, if anything, an aversion to "emotional" words, H. in the first series had none of her associations traced to the first word and 60 % to the second. Under the present circumstances 44 % are due to the first and 51 % to the second, showing an immense increase in power of the first word. S. likewise found his associations from the first word increase from

28 % to 56 %; while the influence of the second word dwindled from 58 % to only 40 %. While St. found an increase from 17 % to 38 % for the first word; and a corresponding decrease from 57 % to 51 % for the second. In other words the new stimulus-words caused a complete change for all the subjects. In the case of three of the four it was strongly in favor of the more emotional words; while in the fourth case it was equally strong away from them. Gr. said that "Words like that (emotional) when they bring anything into your mind, bring so much that you have to think of the other word to get anything definite."

Third Series.

If "emotional" words are able to hold their own to such an extent against concrete words, what is the result when opposed to other abstract words which are given the favorable position? Baldwin makes no comparison of abstract words; but we may point to Table I as evidence that for abstract words as well as others, the second place is most favorable. The stimulus words with a sample series follow:

Jealousy--Opinion Confidence--Theory Scorn--Farm

Glad--Place Dread --Rate

(Glad--Place)

Gr. - - - / / / / / /

H. / / / / / / / / / / / / / /

S. / / / x x x x x x

St. / / - - -

Table III

		/	-	x	a	b	
Gr.	No.	10	26	11	0	0	47
	%	21.2	55.3	23.4	00	00	
H.	No.	31	38	2	0	0	71
	%	43.6	53.5	2.8	00	00	
S.	No.	4	19	21	0	0	44
	%	9.0	43.1	47.7	00	00	
St.	No.	2	5	16	4	2	29
	%	6.8	17.2	55.1	13.7	6.8	
Tot	No.	47	88	50	4	2	191
al	%	24.6	46.0	26.1	2.0	1.0	

While the influence here, of the emotional word is not as large as in Table II, where the circumstances were apparently much more unfavorable, it is to be noted that the column of "fused influence" is much stronger. As H. says "Most of the influence of the emotional word goes to tinge the associations which come from both the words." Gr. says that "The first word hangs in the background, but does not do as much directing as the second." In other words, when compared with another abstract word, the two indefinite meanings tend to coalesce and while the emotional colors the associations the other word directs it. This is particularly

noticeable in such series as Dread--Rate. Usually a train-wreck was thought of and described. The word Rate directed the flow of associations, as for S.--train, fast, stream, wreck, blood, horror, injury, people, signal--all of which were ascribed to the directive influence of Rate and so tabled. Yet the coloring influence of Dread is very noticeable throughout and it is to be doubted if our figures in such cases are sufficiently elastic. Whether wholly directive or not, the influence of such a deep coloring influence ought not to be ignored.

Fourth Series.

In the fourth series association by the so-called "forced fusion" was tried. That is, the subjects were to choose from the associations aroused only those which were relevant and would form a logical train of thought, as far as possible with both the stimulus words. The stimulus words used were all seemingly related or relevant.

Hate--Reverence--Two "emotional " words

Despise--Black--An "emotional" word and a quality

Word--Sympathy--An abstract noun and an "emotional" word

Without attempting to table such different series, they can be represented as follows:

Hate--Reverence

Gr. Failed to take the series

H. - - - - -

S. - - - - -

St. - b a

Despise--Black

Gr. Failed to take the series

H. - - - - -

S. - - - - -

St. b a -

Word--Sympathy

Gr. Failed to take the series

H. x x x x x x x x x x x x x x x

S. - - - - -

St. x a b - - b b

In every case the subjects declared the flow of associations to come from a (partial at least) fusion of the two words. But the influence of each was quite a variable quantity. In the first series there is only case of the direct influence of the first word; and one case of partial fusion. Yet all were emphatic in claiming that the first word was present in the background throughout; the difficulty being in pointing out a particular word which could be clearly said to show the influence. In other words the series was influenced as a whole. It is plain that this series is not far different from that shown in Table I; and "forced fusion" does not make any great difference in the result, as far as

the influence of the two words appears.

In the second series one person thought of the Negro, one of Superstition, and one of Night. As H. seems to express it for all three, "The first word put one in the mood so that when the second word came it was seized upon and associations came in a certain direction." The words are ascribed to Black. Yet behind the whole series was the fact that Despise prepared the way and worked up the mood upon which the second seized.

The third series is a repetition of those noted in Table III, under conditions of "forced fusion." The second word has the advantage of place, and is compared to another abstract word. In this series the "substance" of the series seems to come first, and the "emotional" word which follows was declared to be both a coloring and a directing influence.

The remarks on these three series seemed to point out a difference in office of two words of which one is emotional, and the other not so. The unemotional word is said to give the substance or matter--base, we might say--for the associations. The emotional word furnishes, first, a coloring influence which may secondly, be also a directive influence. Especially is the latter the case when the "substance" is given first and the emotional word comes afterwards to play upon it.

Fifth

A fifth test of the extent to which words of emotional content may bring their full meaning and portent to bear upon us, was that of memory for "emotional" and non-emotional words. Lobsien (Z. P. 27: 1901 pp. 34-76) tested this among other terms, with nine-term series. The rank of the various classes of terms was: Real Objects, Auditory Numbers, Sounds, Tactual Terms, Visual Terms, Auditory Terms, Emotional Terms, Foreign Terms. Of emotional terms boys remembered only 31.2 % while girls remembered only 59.4 %. Lobsien contended that each of the terms aroused a corresponding image, but his contention is not generally admitted. In the present test it was found that all the subjects claimed to remember the words only from the echo of the sound, as an auditory image; though S. discovered certain emotional effects in the memory for the "emotional" words.

Series of emotional and non-emotional words were given, containing four, five, six, seven, and eight words in succession. When a list had been read the subject wrote down the words remembered as far as possible in the exact order. Whipple's suggestions for scoring were used. Omissions and insertions count one error each. Displacements by one remove count one-third of an error; by more than one, as two-thirds. Only the score for the eight-term series is indicated here:--

	Score	
	Emotional Words	Non Emotional Words
G.	62.5 %	37.5 %
A.	100 %	70.3 %
S.	87.5 %	87.5 %
St.	Failed to take the series.	

The memory for emotional words appears to^{be} slightly better than for non-emotional words. Perhaps they did make a larger appeal to the subjects than they themselves thought. Or it may be that the emotional words are less distinct and set apart from one another. We are prevented from theorizing however by the fact that the subjects practically disclaimed any effects from the emotional words.

. . . .

We find then the relation of feeling to the more intellectual processes, as evidenced particularly in the free association series to be many and various.

(1) We find that an emotional word tends to attract the attention more than a non-emotional word, despite any disadvantages of position. And again, having once gained the attention is more apt to keep it. Or as Höffding put it, the emotional words furnish stonger centers of associations.

(2) Again we found that Feeling may inhibit the flow of ideas from reaching the ordinary full conclusion. This

may happen in a number of ways. First we found examples of a new "law of association" by which the series proceeded along lines which it would otherwise have never taken. That is, Feeling was a directing influence. In some cases the whole series seems to "represent part of a developing feeling or mood." Or its influence may be felt in slightly less degree as a "coloring influence" or even a "retarding factor."

(3) When an emotional word appears with another word in the stimulus, their relations may be various. They may coalesce and be mutually responsible for the series. In such case the fusion may be absolute; but more probably the non-emotional word will furnish the frame-work, the skeleton, of the series; while the emotional word builds in upon it the color and tint and reality of meaning. If the non-emotional word comes first, the emotional word seizes upon it and drives it now this way and now that, its influence sometimes too subtle to notice. If the emotional word comes first, it prepares the way, sets the stage, as it were, and when the non-emotional word appears, there is but one course to take suitable to the stage-setting. Two emotional words, or one emotional word and an abstract word are more apt to coalesce in the series than a series in which concrete words have a part. Especially are these results noticeable in "forced fusion."

(4) When two words are pronounced and their influence does not fuse the second is most likely to start the series and to hold on until an inhibition or fusion occurs. If the second word is an "emotional" word it may for that reason be stronger and command enough attention to lose entirely the first word; or if it arouse feeling as a "retarding obstacle" it may furnish the very opportunity for the first word to re-enter the series. If it comes first it is, apparently, better able to find a way to re-enter the series when the second word starts it. In some cases the first word will be of sufficient influence to start the series in spite of the other word breaking in.

(5) Our results tend to prove also that "Feeling is the faithful guardian of what has been acquired," but the justice of the conclusion from the results in Series V is rendered doubtful by the failure of subjects to find any factor in their remembering other than the auditory "after-image."

PARTIAL BIBLIOGRAPHY

Psychology of Feeling

1. Ribot--Psychology of the Emotions
2. Titchener--Psychology of Feeling and Attention.
3. James--Psychology Chap. XXIV.
4. Royce -- Outlines of Psychology Chap. XIV.
5. Höffding--Outlines of Psychology.
6. Külpe--Outlines of Psychology.
7. Angell--Psychology
8. Titchener--
9. Bain--Emotions and Will--Section on Emotions.
10. Calkins--Introduction to Psychology--Chapt. XV.
11. Baldwin--Feeling and Will.
12. Külpe--Zur Theorie d_e simpl_{en} Gefühle
13. Ladd--Descriptive Psychology Chap. V.
14. Johnston--"Present State of Psychology of Feeling"
Psych. Bull. Vol. II, No. 5.
15. Johnston--"Feeling Problems in Recent Psychological
Controversies" Psych. Bull. Vol. V. No. 3.
16. Johnston--"Titchener's Psychology of Feeling and At-
tention." Jour. P.P.S.M. Vol. VI, No. 3.
17. Johnston--"Ribot's Theory of the Passions."
Jour. P.P.S.M. Vol. V . No. 8.

18. Johnston--"Feeling Analysis and Experimentation"

Jour. P.P.S.M. Vol. IV. No. 8.

19. Alexander--History of Philosophy.

20. Weber--History of Philosophy

21. Wundt--Outlines of Psychology Pt. I, Sec. 7; Pt.II Sec. ¹²

22. Marshall--Pain, Pleasure and Aesthetics.

23. Keith--"Mutual Influence of Feelings."

Harvard Psychological Studies. Vol. II p 141 ff.

Education of the Feelings.

1. Bain--Education as a Science pp 52-120

2. Compayre -- Psychology Applied to Education XII.

3. Harris--Psychological Foundations of Education XII-XXVIII

4. Holman--Education pp 56-63, 160-172, 193-197.

5. James--Talks to Teachers VII.

6. Oppenheim--Mental Growth and Control

7. Stanley--Evolutionary Psychology of Feeling

8. Bagley--Educative Process

9. Thorndike--Principles of Teaching XII.

10. Horne--Psychological Principles of Education. Part II.

Association

1. Baldwin--Harvard Psychological Studies Vol II 430-73

2. Calkins--"Mental Combination" Psych. Rev. Vol. V.

3. Seashore--Elements of Experimental Phonetics
4. James--Psychology Vol.I 576 ff
5. Colvin--Learning Process--Chap. X.
6. Calkins--Psych. Rev. Monograph Supplement No. 2.
7. Titchener--Outlines of Psychology Chap. VIII
8. Wundt--Outlines of Psychology Pt. III, 16, 13.
9. Meakin--"Mutual Inhibition of Memory Images"

Harvard Psychological Studies Vol.I, p 235 .ff.